

WHAT IS CLAIMED IS:

1           1.    For use in a wireless network comprising a plurality of  
2   base transceiver stations, each of said base transceiver stations  
3   capable of establishing and maintaining communication links with a  
4   plurality of a mobile stations by means of at least one overhead  
5   channel and a plurality of data traffic channels, an apparatus for  
6   allocating said plurality of data traffic channels comprising:

7               at least one of:

8               a failure detection circuit capable of detecting a  
9   failure in said at least one overhead channel of a first  
10   base transceiver station and generating a failure  
11   notification; and

12              an access request detection circuit capable of  
13   detecting an access request message received from an  
14   accessing one of said plurality of mobile stations and  
15   generating an access request notification; and

16              a channel allocator capable of receiving at least one of  
17   said failure notification and said access request notification and,  
18   in response thereto, terminating a first communication link between  
19   said first base transceiver station and a first selected one of  
20   said plurality of mobile stations, wherein said first selected  
21   mobile station maintains at least a second communication link with

22 at least a second base transceiver station, and at least one of:  
23 reconfiguring a first data traffic channel  
24 associated with said terminated first communication link  
25 as a replacement overhead channel replacing said failed  
26 overhead channel; and  
27 allocating said first data traffic channel  
28 associated with said terminated first communication link  
29 to establish a communication link with said accessing  
30 mobile station.

1 2. The apparatus set forth in Claim 1 wherein said channel  
2 allocator is capable of determining if one of said plurality of  
3 data traffic channels associated with said first base transceiver  
4 station is unused prior to terminating said first communication  
5 link between said first base transceiver station and said first  
6 selected mobile station.

1           3.    The apparatus set forth in Claim 2 wherein said channel  
2    allocator reconfigures an unused one of said plurality of data  
3    traffic channels associated with said first base transceiver  
4    station as said replacement overhead channel in lieu of terminating  
5    said first communication link and reconfiguring said first data  
6    traffic channel associated with said terminated first communication  
7    link.

1           4.    The apparatus set forth in Claim 2 wherein said channel  
2    allocator allocates an unused one of said plurality of data traffic  
3    channels associated with said first base transceiver station to  
4    establish a communication link with said accessing mobile station  
5    in lieu of terminating said first communication link and allocating  
6    said first data traffic channel associated with said terminated  
7    first communication link to establish a communication link with  
8    said accessing mobile station.

1           5.    The apparatus set forth in Claim 1 further comprising a  
2   memory coupled to said channel allocator, wherein said memory is  
3   capable of storing status data associated with said first  
4   communication link.

1           6.    The apparatus set forth in Claim 5 wherein said status  
2   data comprises a received signal strength indicator associated with  
3   said first communication link.

1           7.    The apparatus set forth in Claim 5 wherein said status  
2   data comprises handoff state data, wherein said handoff state data  
3   indicates whether said first selected mobile station associated  
4   with said first communication link maintains said at least a second  
5   communication link with said at least a second base transceiver  
6   station.

1           8.    The apparatus set forth in Claim 7 wherein said handoff  
2   state data indicates a total number of communication links said  
3   first selected mobile station maintains with other ones of said  
4   plurality of base transceiver stations.

1           9.    A wireless network comprising:

2                a plurality of base transceiver stations, each of said  
3 base transceiver stations capable of establishing and maintaining  
4 communication links with a plurality of a mobile stations by means  
5 of at least one overhead channel and a plurality of data traffic  
6 channels; and

7                at least one apparatus for allocating said plurality of  
8 data traffic channels comprising:

9                   at least one of:

10                   a failure detection circuit capable of  
11 detecting a failure in said at least one overhead channel  
12 of a first base transceiver station and generating a  
13 failure notification; and

14                   an access request detection circuit capable of  
15 detecting an access request message received from an  
16 accessing one of said plurality of mobile stations and  
17 generating an access request notification; and

18                   a channel allocator capable of receiving at least  
19 one of said failure notification and said access request  
20 notification and, in response thereto, terminating a  
21 first communication link between said first base  
22 transceiver station and a first selected one of said

23 plurality of mobile stations, wherein said first selected  
24 mobile station maintains at least a second communication  
25 link with at least a second base transceiver station, and  
26 at least one of:

27 reconfiguring a first data traffic channel  
28 associated with said terminated first communication link  
29 as a replacement overhead channel replacing said failed  
30 overhead channel; and

31 allocating said first data traffic channel  
32 associated with said terminated first communication link  
33 to establish a communication link with said accessing  
34 mobile station.

1 10. The wireless network set forth in Claim 9 wherein said  
2 channel allocator is capable of determining if one of said  
3 plurality of data traffic channels associated with said first base  
4 transceiver station is unused prior to terminating said first  
5 communication link between said first base transceiver station and  
6 said first selected mobile station.

1           11. The wireless network set forth in Claim 10 wherein said  
2 channel allocator reconfigures an unused one of said plurality of  
3 data traffic channels associated with said first base transceiver  
4 station as said replacement overhead channel in lieu of terminating  
5 said first communication link and reconfiguring said first data  
6 traffic channel associated with said terminated first communication  
7 link.

1           12. The apparatus set forth in Claim 10 wherein said channel  
2 allocator allocates an unused one of said plurality of data traffic  
3 channels associated with said first base transceiver station to  
4 establish a communication link with said accessing mobile station  
5 in lieu of terminating said first communication link and allocating  
6 said first data traffic channel associated with said terminated  
7 first communication link to establish a communication link with  
8 said accessing mobile station.

1           13. The wireless network set forth in Claim 9 wherein said  
2 apparatus further comprises a memory coupled to said overhead  
3 channel controller, wherein said memory is capable of storing  
4 status data associated with said first communication link.

1           14. The wireless network set forth in Claim 13 wherein said  
2 status data comprises a received signal strength indicator  
3 associated with said first communication link.

1           15. The wireless network set forth in Claim 9 wherein said  
2 status data comprises handoff state data, wherein said handoff  
3 state data indicates whether said first selected mobile station  
4 associated with said first communication link maintains said at  
5 least a second communication link with said at least a second base  
6 transceiver station.

1           16. The wireless network set forth in Claim 15 wherein said  
2 handoff state data indicates a total number of communication links  
3 said first selected mobile station maintains with other ones of.  
4 said plurality of base transceiver stations.



1           17. For use in a wireless network comprising a plurality of  
2 base transceiver stations, each of the base transceiver stations  
3 capable of establishing and maintaining communication links with a  
4 plurality of a mobile stations by means of at least one overhead  
5 channel and a plurality of data traffic channels, a method for  
6 allocating the plurality of data traffic channels comprising the  
7 steps of:

8           at least one of:

9           detecting a failure in the at least one overhead  
10 channel of a first base transceiver station;

11           detecting an access request message received from an  
12 accessing one of said plurality of mobile stations; and

13           in response to at least one of the failure detection and  
14 the access request message detection, terminating a first  
15 communication link between the first base transceiver station and  
16 a first selected one of the plurality of mobile stations, wherein  
17 the first selected mobile station maintains at least a second  
18 communication link with at least a second base transceiver station;  
19 and

20           at least one of:

21           reconfiguring a first data traffic channel  
22 associated with the terminated first communication link

23           as a replacement overhead channel replacing the failed  
24           overhead channel; and  
25           allocating the first data traffic channel associated  
26           with the terminated first communication link to establish  
27           a communication link with the accessing mobile station..

1           18. The method set forth in Claim 17 further comprising the  
2           step of determining if one of the plurality of data traffic  
3           channels associated with the first base transceiver station is  
4           unused prior to terminating the first communication link between  
5           the first base transceiver station and the first selected mobile  
6           station.

1           19. The method set forth in Claim 18 further comprising the  
2           step of reconfiguring an unused one of the plurality of data  
3           traffic channels associated with the first base transceiver station  
4           as the replacement overhead channel in lieu of terminating the  
5           first communication link and reconfiguring the first data traffic  
6           channel associated with the terminated first communication link.

1           20. The method set forth in Claim 16 further comprising the  
2       step of allocating an unused one of the plurality of data traffic  
3       channels associated with the first base transceiver station to  
4       establish a communication link with the accessing mobile station in  
5       lieu of terminating the first communication link and allocating the  
6       first data traffic channel associated with the terminated first  
7       communication link to establish a communication link with the  
8       accessing mobile station.